Investigation of Ephemeris Data Handling Alternatives (1a)

1. Determine the source, content and volume of the various inputs which are used in the construction of the frame ephemeris.

2. Determine, in detail, the purposes for which the ephemeris is used and the users.

3. Examine the accuracy requirements on ephemeris data as applied to each separate use.

4. List, in detail, the steps in producing an ephemeris.

5. Make an analysis comparable to steps 1-4 above for aircraft position and attitude data.

6. Investigate the potential changes in source data and uses of position and attitude data over the 1968-1974 time frame. Document the sources of this information.

7. Develop a recommended procedure for processing vehicle position and attitude data for various classes of vehicles which can readily evolve from present inputs and usage to that anticipated in the 1968-1974 time frame.

8. Determine the volume of position and attitude data required in immediate storage from an analysis of actual use over a three month period.

9. Coordinate findings with the System Design Team.

10. Prepare a memorandum describing the results of the work conducted on this sub-task. Where alternatives have been considered and/or changes in existing procedures are recommended, describe the advantages and disadvantages of the various considerations.

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Establish Readout Worksheet Format (1b)

1. Review existing target briefs to insure that the concept developed in Phase I will adequately apply to the content of any target brief (the initial concept was revised when the target brief for the missile complex was received because certain descriptions were an evident requirement). Modify the conceptual worksheet as required.

2. Coordinate with DIA and/or SAC to determine the format of a standard data recording technique mentioned in the JIIRG report. Investigate the effect of having the conceptual NPIC format and the referenced military format from the standpoint of file structure in a national target data file (an NPIC responsibility in the JIIRG report). Modify the conceptual NPIC format where such modifications simplify the file structure without degrading the anticipated value of the conceptual format in NPIC organization.

3. Determine the frequency with which various parts of the current target brief are employed during readout. This largely subjective task will have to be accomplished through PI interview and monitoring of PI's during readout activities. Estimates should be derived for:

   a. Immediate readout
   b. Mission indexing
   c. Targets with which the PI is familiar
   d. Unfamiliar targets

4. Modify the conceptual worksheet (Part A) as necessary to present data required 75% to 90% of the time, and make any necessary adjustments in the Parts B, C, D, and E. Brief the PAG and CSD staffs on the proposed worksheet and other target data material, and obtain:

   a. A list of several targets for simulation in the use of the conceptual target brief data during actual readout.
   b. The services of two PI's in improving the worksheet concept and conducting initial experiments in its use.

5. Reformat the selected target briefs into Parts A, B, C, D, and E, and maintain manually. Develop a procedure for converting the worksheet entries into the current reporting format.

6. Employ the conceptual target briefs in actual readout (with the indoctrinated PI's). Note the time involved on each target. Also note the time involved in reading out similar targets (other PI's using current procedures) during the same exercise. Compare the distributions of times for new and old data sheets. The results from several readout cycles should be employed.

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7. During several current exercises, check the time involved in readout where the target is unfamiliar to the PI. Prior to receipt of film, brief several new PI's on the use of the worksheet. During subsequent readouts, record the PI time on readout of unfamiliar targets when provided with the conceptual target data formats. Compare the distribution of these times.

8. Modify the conceptual target data file format as necessary to eliminate errors which have been noted in recording, to ease indoctrination of PI's, and to incorporate recommendations of the PI's.

9. Prepare a memorandum outlining problems which may result from NPIC assumptions of the national target data files with the use of separate NPIC and DIA target data formats. This memorandum should contain recommendations for change in the military format which would ease NPIC file problems. Action on this memorandum would be an NPIC responsibility.

10. In coordination with the System Design Team, prepare a position memorandum recommending the final worksheet readout format and the supplementary Parts B, C, D, and E, if these still exist.

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Establish Product Set (1c)

1. Review the JIIRG report and other available documentation concerning requirements for information from NPIC. Establish a preliminary list of the types of information which should be contained in NPIC output.

2. Determine, en toto, the form and content of current NPIC products.

3. Conduct a series of visits with intelligence units in the Washington, D.C. area which currently receive NPIC products. Both photo analysis units (IAD, DIA, Army Map Service) and non-photo intelligence units (Hq. AFSC, National Indications Center, and some Naval unit) should be visited to provide a cross-sectional viewpoint of NPIC product improvement. These visits should be of rather limited scope and cover:

   A. Problems in user employment of current NPIC products, such as:

      (1) Filing and updating of NPIC readout reports.
      (2) Reducing current NPIC products to data directly applicable to routine analysis or decision.
      (3) Retrieving historical photo intelligence data from local files of NPIC data.

   B. User opinion concerning:

      (1) The type(s) of changes in targets which normally precipitate action on the part of the user.
      (2) The need, if any, for the presentation of comparative data (e.g. old target status versus new) in immediate readout.
      (3) The usefulness of fully updated target descriptions.
      (4) The relative value of photographic (or graphic) versus alpha-numeric target description.
      (5) The reporting of OB changes only when normal ranges (established and maintained on a basis of recent readouts) are exceeded.

4. Describe a product set for future NPIC production which would be of maximum benefit to users of NPIC products. Insure that this set of products includes all types of information identified in the preliminary list. Give separate consideration to new products (some current products will probably be included).

5. Formulate procedures and techniques for generating new products, and improving production, where possible, in current products which are retained. Investigate possible types of errors that might occur, including;

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a. Sight correctable errors (spelling).
b. Sight identifiable errors (context).
c. Parity correctable and/or identifiable errors (numeric values).
d. Un-identifiable errors (poor data in data base).
e. Errors of omission (mission, entries).

6. In coordination with the System Design Team, prepare a position memorandum recommending the product set and the production techniques, including actions that will be possible to minimize errors in production which have not been anticipated.

Establish Procedures for Transcription, Entry and Approval of Target Material (1d)

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1. Coordinate all work with System Design Team.
2. Obtain sample Worksheets.
3. Using latest readouts, annotate Worksheets.
4. Determine parts of Worksheets that can be machine read and alternative Worksheet arrangements to facilitate.
5. Determine parts of Worksheets that must be keyed into system and alternative Worksheet arrangements to facilitate this operation.
6. Estimate numbers of characters that can be machine read and that must be hand keyed.
7. Estimate time required to do item 6 using logical groupings of Worksheets.
8. Estimate sources of errors and types of errors likely to occur in the transcription process.
9. Hypothesize Editors display of Worksheet entered material. Delineate actions and functions that Editor must perform during editorial acceptance of Worksheet material. Determine if an auxiliary display or material will be required by Editor.
10. Discuss displays and actions with PD Editors and obtain comments.
11. Modify previous displays, concepts and actions to improve the system functioning.
12. Hypothesize Mission Coordinators Display of editorially approved material. Delineate actions and functions that Coordinator must perform during intellectual acceptance of editorially approved material. Determine if an auxiliary display or additional material will be required by the Coordinator.
13. Discuss displays and actions with PAG Coordinators and obtain comments.
14. Modify previous displays, concepts and actions to improve the system functioning.

15. Prepare a memorandum report on all of the above actions and including all examples utilized in discussions with Center personnel.

16. Support System Design group as requested.

Investigation of Mensuration Alternatives (1e)

1. Study the mensuration procedures currently in use to determine the inputs required, the resultant outputs and the processing techniques employed.

2. Determine the frequency of use of the various mensuration procedures, the quantities of data retrieved, the required response times and the form of the output. This data must necessarily be averaged over a reasonable time period but should also include estimates of peak loading conditions.

3. Determine the effect of a PI mensuration device on TID workloads and on IPD procedures. Describe the potential uses of such a device and the accuracy limits on inputs and processing procedures.

4. Investigate alternative procedures for the presentation of information derived from mensuration and their advantages and disadvantages.

5. Coordinate findings with the System Design Team.

6. Prepare a memorandum describing the results of this sub-task and recommending a procedure for the acquisition, processing and display of mensuration data. Where alternatives or changes to existing procedures have been considered, describe the advantages and disadvantages.

Investigation of Target Prediction Procedures (1f)

1. Determine the sources of information available prior to receipt of film for predicting target coverage and their film location.

2. Make estimates of the probable accuracy of prediction based on historical experience over a reasonable time period.

3. From data gathered in Task 1(a), make estimates of the probable improvement in prediction accuracy likely to result from improved attitude and position information.

4. Develop a recommended procedure for the prediction of target coverage and the film location of targets to an accuracy consistent with other system activities. Where reasonable alternatives to the procedure exist, determine the advantages and disadvantages of each.

5. Coordinate findings with the System Design Team.

6. Prepare a memorandum describing the results of this sub-task and supporting the recommendations made in Item 4.

Investigate Scheduling Procedures for the Immediate Reporting Cycle (1g)

1. Determine present policy in the selection of PI teams for immediate read-out, assignment of targets to particular teams or individuals and establishment of target priorities.

2. Determine the distribution of assignment information and the purposes for which this information is used.

3. Determine how well present scheduling procedures conform to actual practice, in what areas revision is most frequently needed and why.

4. Establish an automatic procedure for preparing lists of PI assignments, film and collateral support material distribution. Determine the availability of the necessary inputs to support such a procedure. Indicate where, and how, manual intervention can be accomplished to modify the program outputs. Where alternative steps are considered, analyze the advantages and disadvantages.

5. Coordinate findings with the System Design Team.

6. Prepare a memorandum describing the results of this sub-task and provide justification for any recommendations which have been made.

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Identify Support Materials (1h)

1. Using SCR 288 and all other available material as references, list the support materials (excluding target data sheets) used by the PI. Prepare separate lists for each different type of PI activity (immediate readout, indexing, detailed reporting), and under each different type of PI activity, separate digital materials from those non-digital materials which have been excluded from consideration under the current design effort.

2. For the excluded material, determine and record the current method of storing, handling and distributing each type of information.

3. For the remaining types of support material, determine the comparative frequency with which each type of material is employed in each type of PI activity. These data should be obtained through PI interview, monitoring of PI activity, check of signout records in classified document control registers, and possibly through a brief program in which CSD members of the PI teams are requested to record calls for material. Frequency data can then be employed to determine which support materials should be provided automatically versus supplied on call.

4. Determine the current method of storing, handling, and distributing these digital support materials. Identify revised methods of storing, handling, or distributing materials which have been included in either the conceptual design or previously accomplished tasks (mensuration investigations, establishing worksheet format, etc.). Review the method of storing, handling and distributing materials not so identified to develop and recommend any techniques which offer advantage under the integrated information system design.

5. In coordination with the System Design Team, prepare a memorandum report which details the provision of all support materials to PI activity under the system design. Establish the scope of the support material and describe how it will be handled, stored, scheduled for distribution, and distributed.

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Develop Preliminary Target Data File Structure (11) WORKING PAPER

1. Coordinate all work with System Design Team.

2. Review Target Data to be added to File.

3. Review Products of the product set which are to be automatically generated.

4. Review Target Briefs and Worksheet descriptions and Formats.

5. Review Ephemeris Data Storage and Retrieval Requirements that might interface with Target Data File.

6. Review All Source Index and Minicard Data that might interface or overlap with Target Data File.

7. Review Film Control System to ascertain interface with Target Data File.

8. Identify and review all other information that might interface with Target Data File including Briefing Board Notes, indexes to PI keys, etc.

9. Identify the use, usefulness, redundancy, storage time, etc. of all data in the above items.

10. Using good engineering judgment, prepare preliminary descriptions of Target Data File Structures.

11. Prepare a memorandum report on all of the above items and include all examples utilized in discussions with Center personnel.

12. Support the System Design group as requested.

Develop Preliminary File Utilization Techniques (1j)

1. Coordinate all work with System Design Team.

2. Investigate data base sectoring considerations.

3. Estimate size of sectors.

4. Define, update and maintenance procedures for each sector.

5. Estimate sector use factors in conjunction with System Design Team.

6. Hypothesize maintenance (updating and purging) and backup data base utilization procedures.

7. Develop file protection techniques for each sector and delineate hardware and software requirements and alternatives where applicable.

8. Investigate data base integrity requirements imposed upon the system by the national data base.

9. Prepare a memorandum report on all of the above actions including all examples utilized in discussions with Center personnel.

10. Support System Design group as requested.

Establish Data Base Material Retrieval Techniques (1k)

1. Coordinate all work with System Design Team.

2. Review preliminary file structure and utilization package.

3. Review product set.

4. Review requirements and needs for retrieval of supplementary target material.

5. Review state-of-the-art of retrieval techniques and procedures.

6. Identify material that should be retrievable from file and arrange into logical groupings to facilitate later efforts in this task and in the System Design.

7. Utilizing good engineering judgment and carefully weighing human factor aspects, formulate techniques and procedures for retrieving all of the material identified in item 6.

8. In conjunction with the design team, evaluate item 7 from a systems point of view and select the material that is to be retrievable from the data base.

9. In conjunction with the design team, formulate the techniques and procedures to be used to retrieve the selected set.

10. Prepare a memorandum report on all of the above actions and include all examples utilized in discussions with Center personnel.

11. Support the System Design group as requested.

Establish Control Procedures (1.1)

1. Define the types of classified material (film, documents, or data received in digital form) which are employed in NPIC operations, by security level and access restrictions.

2. Review the control procedures currently in effect for each type of information and evaluate the potential for automated control procedures in lieu of current procedures.

3. Investigate established security regulations in detail, and determine necessary procedures for distribution, loan, recall, and inventory of classified material considered eligible for automated control.

4. Coordinate with the System Design Team.

5. Prepare a memorandum describing the total control procedures, both manual and automatic, which will be included in the system design.

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Establish Briefing Board Procedures (1m)

1. Review the current procedures for initiation of briefing board preparation. Identify all areas in which the integrated information system design calls for, or implies, revised procedures.

2. Review the current procedures for generating the graphic and textual content of briefing boards. Identify any areas in which the system design calls for, or implies, revised procedures.

3. Examine the content of Briefing Board Notes currently on file and establish the format for presentation of these data (Part F of the target brief) from the target data file.

4. In coordination with the System Design Team, prepare a memorandum specifying procedures for initiation and preparation of briefing boards, and retrieval and use of Part F of the target data file.

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Investigation of Machine Graphics Procedures (1n)

1. Determine the requirements for machine produced graphic materials in the approved Product Set (Task 1c).

2. Determine the requirement for machine produced graphics as aids in photo interpretation or other intermediate efforts.

3. Determine the time scales on which each of these classes of graphic materials must be produced and the volume of production in each class.

4. Evaluate available machine graphics equipment and computer programs in terms of their ability to meet these requirements.

5. Determine or suggest additional graphic materials which would enhance the Center's graphic capabilities and which could be produced with available equipment and programs.

6. Coordinate findings with the System Design Team.

7. Prepare a memorandum describing and justifying the graphic products to be produced by the IIS and identifying the hardware and computer programs which would be required.

Integration of COINS and Data Link (lo)

1. Coordinate all work with the System Design Team.

2. Estimate the utilization of COINS by Center personnel and external users.

3. Determine classes of materials to be transmitted over the Data Link.

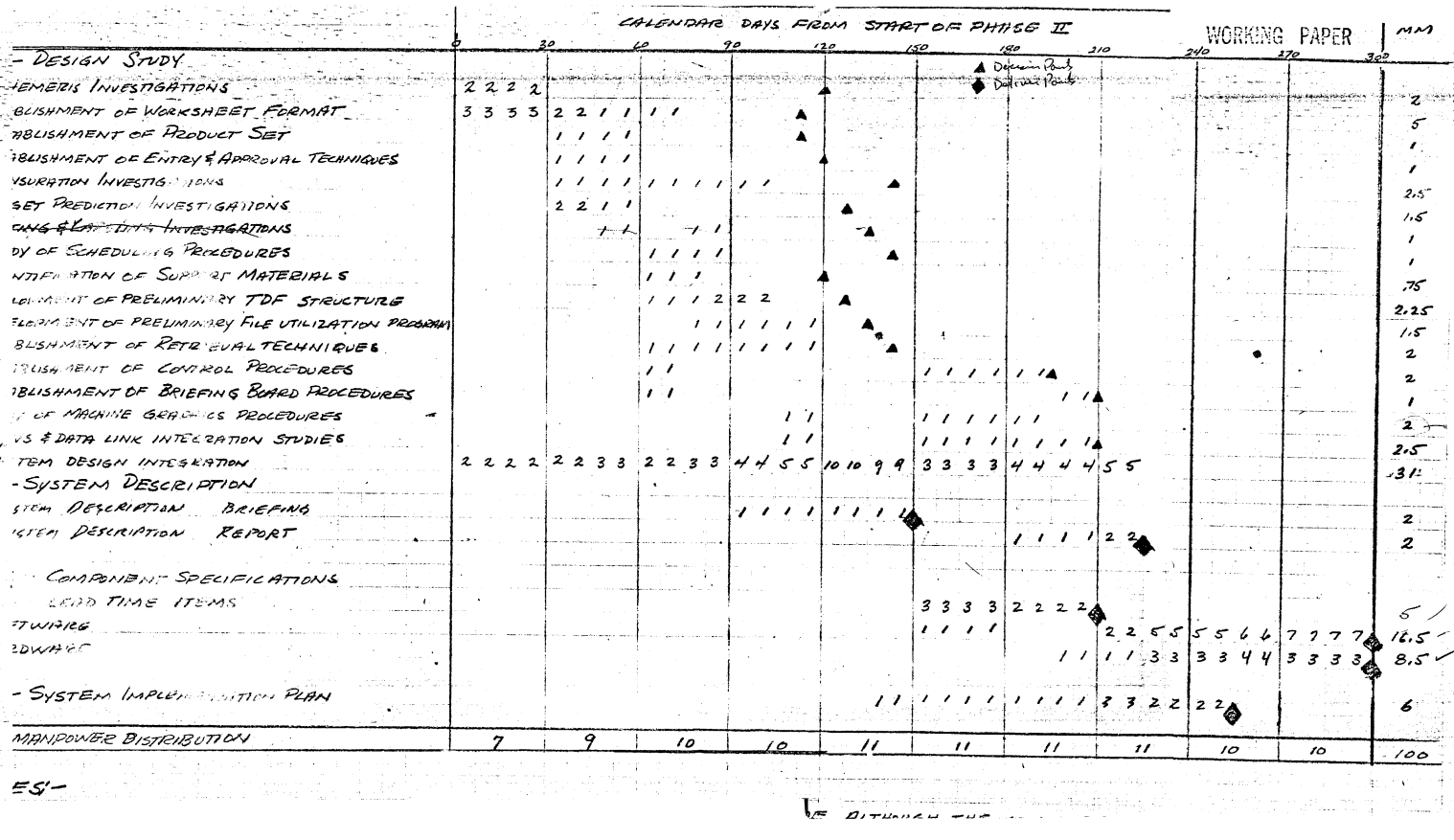
4. In conjunction with the Design Team, investigate the problems (e.g. approval, security, simultaneous release of data) associated with direct access to the data over COINS and the Data Link.

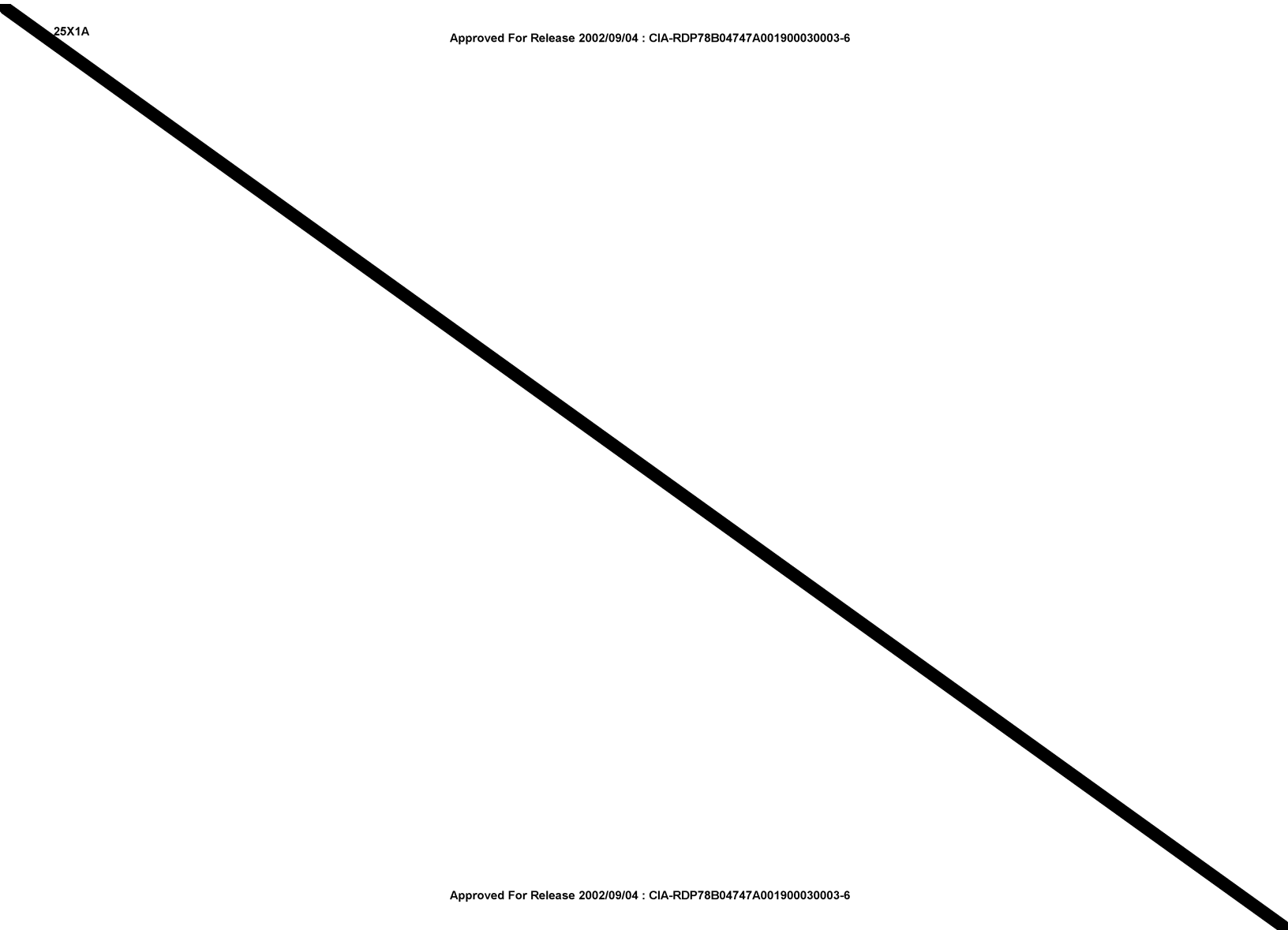
5. Make traffic estimates for the Data Link and for COINS.

6. Define COINS and Data Link interface in coordination with the System Design Team.

7. Prepare a memorandum report on all of the above actions.

8. Support System Design group as requested.





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